NEW TECHNOLOGIES FOR COST-EFFECTIVE HIGH-PERFORMANCE REMOTE SENSING FROM SPACE

James B. Breckinridge
California Institute of Technology
Jet Propulsion Laboratory
Pasadena, CA 91109

Introduction

Scientific exploration of the Solar System, astrophysics discoveries, and earth observations for weather and environment have had a profound effect on our understanding of the Universe. The new space-view of the Universe enabled by modern sensors, propulsion, and materials technology changed forever peoples' perception of themselves and their universe. As in most scientific inquiry, more questions have been raised with each new answer found. In two years, it will be the 40th anniversary of the start of the Space Age.

Historically, space science discoveries were largely a side benefit of the Cold War competition in support of both military objectives and political public relations. I doubt very much that, as scientists, we would have been able to have accomplished even 1% of the space science we have over the past 40 years had it not been for the military requirements of space.

Military missions in space have changed data time when our scientific discoveries are most exciting. Budgets for space science around the globe are decreasing rapidly at a time when we all recognize that the "easy" science HAS been done. To continue our exploration of the Universe, we must continue to capture the imagination of our customers: the U.S. taxpayer and the taxpayers around the globe who participate on our international science missions.

What do I mean by easy science? No longer can a scientist take his laboratory instrument and harden it for space flight, bolt it onto a large

sOI platforms must be integrated into

computational power and focal plane arrays. Future new science capabilities will be enabled through (1) a change in our design philosophy" toward innovative, integrated space.cHIfi and sensor system design, with no boundaries between spacecraft and sensor; (2) advances in control-structures interaction; (3) materials science for new lightweight structural elements; and (4) on-board data processing.

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References

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